

WHAT IS CLAIMED IS:

1. A core structure of an integral heat-exchanger, comprising:
 at least two first heat exchanger tubes which extend in
 parallel with each other;
 5 at least two second heat exchanger tubes which extend in
 parallel with each other, the two second heat exchanger tubes
 being juxtaposed with the first heat exchanger tubes; and
 a corrugated fin including a corrugated first part interposed
 between said first heat exchanger tubes, a corrugated second
 10 part interposed between said second heat exchanger tubes and a
 flat connection part arranged between the corrugated first and
 second parts,
 said corrugated first part of the fin being formed with a
 plurality of first louvers each extending substantially between the
 15 two first heat exchanger tubes;
 said corrugated second part of the fin being formed with a
 plurality of second louvers each extending substantially between
 the two second heat exchanger tubes, the innermost one of said
 second louvers being positioned away from the innermost end of
 20 said corrugated second part of the fin by a given length; and
 said flat connection part being formed with a third louver in
 the vicinity of the innermost one of said first louvers, said third
 louver being constructed to obstruct a heat transfer in the fin.
- 25 2. A core structure as claimed in Claim 1, in which said first
 louvers and second louvers are constructed to improve a heat
 radiation of the fin, and in which each of said first, second and
 third louvers extends in a direction perpendicular to the direction
 in which air flows.
- 30 3. A core structure as claimed in Claim 1, in which the
 distance between said third louver and the innermost one of said
 first louvers is greater than the distance between adjacent two of

said first louvers, said first louvers being arranged at a constant pitch.

4. A core structure as claimed in Claim 1, in which second
5 heat exchanger tubes are located behind said first heat
exchanger tubes with respect to a direction in which air flows.

5. A core structure as claimed in Claim 4, in which said first
10 heat exchanger tubes and said corrugated first part of the fin are
arranged to treat with a lower temperature and in which said
second heat exchanger tubes and said corrugated second part of
the fin are arranged to treat with a higher temperature.

6. A core structure as claimed in Claim 5, in which said first
15 heat exchanger tubes are arranged to flow therethrough a
refrigerant of an automotive air conditioner and said second heat
exchanger tubes are arranged to flow therethrough an engine
cooling water.

7. A core structure as claimed in Claim 1, in which the
20 distance between said third louver and the innermost end of said
corrugated second part of the fin is less than 12mm, and in
which said given length is greater than a pitch at which said
second louvers are arranged.

8. A core structure as claimed in Claim 1, in which the length
25 between the third louver and the innermost one of said second
louvers is substantially equal to the length of said flat connection
part of said fin.

9. A core structure as claimed in Claim 1, in which a front
30 cluster including said first louvers and said third louver and a
rear cluster including said second louvers are arranged

symmetrically with respect to said flat connection part of said fin.

10. A core structure as claimed in Claim 9, in which a center
line of said corrugated fin is located in a center portion of said
5 flat connection part.

11. A core structure as claimed in Claim 1, in which the width
of the first heat exchanger tube is different from that of the
second heat exchanger tube.

10 12. A core structure as claimed in Claim 11, in which the
number of louvers provided in a front cluster including said first
louvers and said third louver is different from that of the louvers
provided in a rear cluster including said second louvers.

15 13. A core structure of an integral heat-exchanger, comprising:
at least two first heat exchanger tubes which extend in
parallel with each other;

20 at least two second heat exchanger tubes which extend in
parallel with each other, said second heat exchanger tubes being
juxtaposed with said first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed
between said first heat exchanger tubes, a corrugated second
part interposed between said second heat exchanger tubes and a
25 flat connection part arranged between the corrugated first and
second parts,

said corrugated first part of the fin being formed with a
plurality of first louvers each extending substantially between the
two first heat exchanger tubes;

30 said corrugated second part of the fin being formed with a
plurality of second louvers each extending substantially between
the two second heat exchanger tubes; and

said flat connection part being formed with a plurality of

heat radiation portions, each radiation portion being constructed not to largely deteriorate the heat transfer in the fin.

14. A core structure as claimed in Claim 13, in which said heat
5 radiation portions are auxiliary louvers, each auxiliary louver being smaller in size than each of the first and second louvers.

15. A core structure as claimed in Claim 14, in which each of
10 said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.

16. A core structure as claimed in Claim 13, in which said heat
15 radiation portions are projections integrally formed on the flat connection part of the corrugated fin.

17. A core structure as claimed in Claim 13, in which said heat
radiation portions are raised parts which are formed by cutting and raising the cut portions.

20 18. A core structure as claimed in Claim 13, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12mm.

25 19. A core structure as claimed in Claim 1, in which the number of the louvers provided in a front cluster including said first louvers and said third louver is different from that of the louvers provided in a rear cluster including said second louvers, and in which said flat connecting part of the corrugated fin is
30 formed with a plurality of heat radiation portions which are located closer to the corrugated second part than the corrugated first part, each radiation portion being constructed not to largely deteriorate the heat transfer in the fin.

20. A core structure as claimed in Claim 19, in which said heat radiation portions are auxiliary louvers, each auxiliary louver being smaller in size than each of the first, second and third
5 louvers.

21. A core structure as claimed in Claim 20, in which each of said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.
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22. A core structure as claimed in Claim 19, in which said heat radiation portions are projections integrally formed on the flat connection part of the corrugated fin.
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23. A core structure as claimed in Claim 19, in which said heat radiation portions are raised parts which are formed by cutting and raising the cut portions.
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24. A core structure as claimed in Claim 19, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12mm.